VERTICA CHINA PNR

ANALYST

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THE BOTTOM LINE

China PnR moved to the Vertica Analytics Platform with great success when it reached the tipping point in its business growth. The company's legacy system was more expensive and far too slow to support its growth goals. By switching to Vertica, China PnR saved millions in reduced hardware and software costs, improved employee productivity, and increased platform stability.

ROI: **422%**

Payback: **2 months**

Average annual benefit: **$1,914,969**

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THE COMPANY

Founded in 2006 and headquartered in Shanghai, China PnR is a leading provider of financial services for small businesses and individual investors. It began as an online payment processor and has developed into infrastructure services and other finance sectors. The company deals, among other areas, in financial and asset management and posted over two trillion yuan in transactions in 2016.

THE CHALLENGE

Prior to switching to Vertica, China PnR had been using Oracle for its database and analytics reporting. Oracle had been a popular vendor in China for many years, but in 2013, China PnR realized it would not be able to support its growth goals unless it made drastic changes to its data management setup. The company was making many changes to its business strategy and needed a data platform to support them.

Cost : Benefit Ratio | **1 : 4.3**

An additional drawback of its Oracle system was the data architecture, which revolved around a main node. When the main node crashed, the entire system was shut down for hours at a time. A lack of integration for the coding language R necessitated inconvenient workarounds for more advanced analytics queries. Support from Oracle was also less than ideal, taking over a week in most cases for tickets to be resolved.

THE STRATEGY

The company began looking for alternatives in 2013. It evaluated full solution providers such as Teradata and an upgrade of its Oracle project, while also exploring home-grown options like building its own Hadoop or MySQL warehouse. Each of these options ended up being too expensive, and the OLAP capabilities of Hadoop and MySQL were not sufficient for China PnR at that time either.

The China PnR team also looked at Vertica and had them come in to perform a proof-of-concept. A Vertica engineer came in from the United States and tested a number of scenarios using the company's data sets. The team realized that Vertica had massive speed improvements and felt that the product offered the highest return on investment of all the options considered.

TYPES OF BENEFITS

Direct 78% | 22% Indirect

Deployment began in late 2013 and involved an internal team of two database administrators (DBAs) and the Vertica implementation team. The project took three months to complete and went live in early 2014. Year to year, China PnR has increased the scope of the project and adds internal IT staff regularly to maintain the platform, reaching four DBAs in 2016.

Training for the project was limited to the internal IT staff actively working on the back end of the application. These employees received two weeks of training. The SQL-based architecture was much easier for the DBAs to learn than other NoSQL-type databases.

KEY BENEFIT AREAS

The move to Vertica was critical to the expansion of the business while maintaining its financial goals. With the increased functionality and usability of Vertica over its past setup, China PnR has realized direct legacy cost savings and indirect benefits to IT and end users. Key benefits of the project include:

▪ Legacy cost savings. By switching to Vertica, the company was able to avoid a large upgrade investment on its already expensive legacy system. The relatively low data storage, maintenance, and hardware costs allowed the company to expand in a much less expensive way.

▪ Faster query time. Analysts run over 40 queries per day through the Vertica Analytics Platform. Previously, queries took up to one hour to complete, but the run time with Vertica has been reduced to less than one minute. Users are able to run more reports more quickly, facilitating large growth in the volume of data processed daily and the amount of time employees can spend analyzing reports.

CUMULATIVE NET BENEFIT
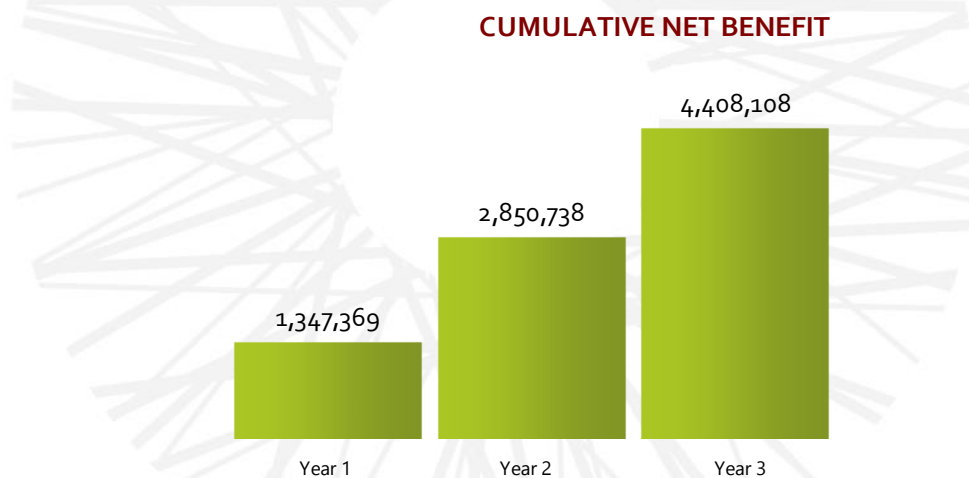
▪ Faster data loading. The previous system took as long as 10 hours to load data into the analytics engine, which left the company waiting until noon each day when loading financial information from the day before. While employees handled other business tasks in the morning, they were limited to the afternoon for data and query work. With Vertica, that loading time has been reduced to one hour, making it so that the analyst team can start right on the morning whistle.

▪ Improved platform stability. Crashes with both the old and new systems occur about once every quarter. With the old data architecture, a crash in the main

node would cause a system-wide shutdown that would take the IT team 10 hours on average to resolve. With Vertica's distributed node architecture, individual crashes do not affect other nodes and allow for most employees to continue their work as usual while the IT team fixes the issue.

- Improved support. Vertica has a robust support system in place in China. A user group across the country provides customers with an expedient way to ping fellow users regarding critical questions and often leads to more efficient issue resolution. When the Vertica support team does need to get involved, tickets were resolved in three days on average, saving seven days compared to its previous support experiences.

KEY COST AREAS

Costs of the project included software licensing costs, maintenance fees, hardware costs, personnel time to deploy and maintain the project, and employee training. The deployment team from Vertica was included in the contract costs. Licensing was priced based on storage usage and was a one-time charge, and China PnR ended up expanding their licensing later in the project's lifecycle. Hardware costs included 12 new servers purchased for the project.

NET CASH FLOWS

	1,725,369	1,503,369	1,557,369
(378,000) Initial	Year 1	Year 2	Year 3
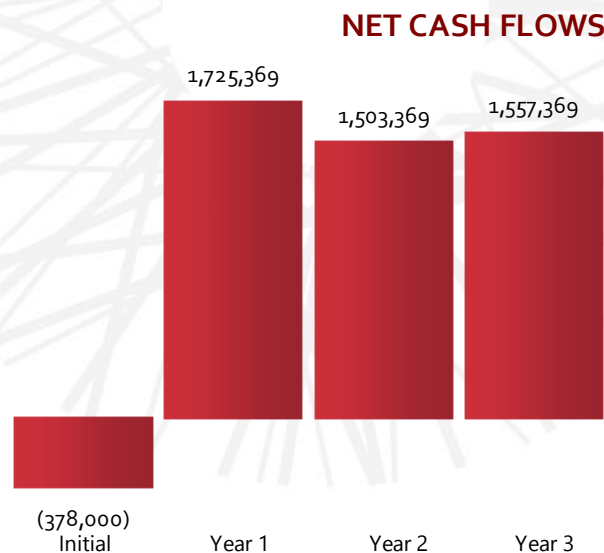
BEST PRACTICES

National IT infrastructure can have a big impact on the success—or failure—of a project. China PnR initially chose Oracle based on local popularity and name recognition. When the spirit of the Chinese market changed and Vertica became a

better established technology solution in the country, China PnR was able to leverage greater peer resources and faster local support.

Like most data management platforms, Vertica does have significant hardware requirements, so it is important that companies evaluate the hardware resources on hand and set clear expectations for how the purchase of additional hardware will affect the ROI of the project.

CALCULATING THE ROI

Nucleus quantified the initial and ongoing costs of software licensing, maintenance, hardware investments, personnel time expended for setup and maintenance, and training time.

Direct benefits quantified included the avoided legacy software costs. The indirect benefits quantified included the increase in IT productivity from faster query times, faster data loading, increased platform stability, and better support. These productivity savings were quantified based on the average annual fully loaded cost of an employee using a correction factor to account for the inefficient transfer between time saved and additional time worked. Different activities required different correction factors based on the effect on employee productivity.

FINANCIAL ANALYSIS
China PnR

Annual ROI: 422%
Payback period: 0.2 years

BENEFITS	Pre-start	Year 1	Year 2	Year 3
Direct	0	1,500,000	1,500,000	1,500,000
Indirect	0	414,969	414,969	414,969
Total per period	0	1,914,969	1,914,969	1,914,969

COSTS - CAPITALIZED ASSETS	Pre-start	Year 1	Year 2	Year 3
Software	0	0	0	0
Hardware	0	0	0	0
Project consulting and personnel	0	0	0	0
Total per period	0	0	0	0

COSTS - DEPRECIATION SCHEDULE	Pre-start	Year 1	Year 2	Year 3
Software	0	0	0	0
Hardware	0	0	0	0
Project consulting and personnel	0	0	0	0
Total per period	0	0	0	0

COSTS - EXPENSED	Pre-start	Year 1	Year 2	Year 3
Software	150,000	24,000	174,000	48,000
Hardware	180,000	0	0	0
Consulting	0	0	0	0
Personnel	36,000	165,600	237,600	309,600
Training	12,000	0	0	0
Other	0	0	0	0
Total per period	378,000	189,600	411,600	357,600

FINANCIAL ANALYSIS	Results	Year 1	Year 2	Year 3
All government taxes	45%			
Cost of capital	7.0%			
Net cash flow before taxes	(378,000)	1,725,369	1,503,369	1,557,369
Net cash flow after taxes	(207,900)	948,953	826,853	856,553
Annual ROI - direct and indirect benefits				**422%**
Annual ROI - direct benefits only				312%
Net Present Value (NPV)				2,100,380
Payback period				**0.2 years**
Average Annual Cost of Ownership				445,600
3-Year IRR				444%

All calculations are based on Nucleus Research's independent analysis of the expected costs and benefits associated with the solution.

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